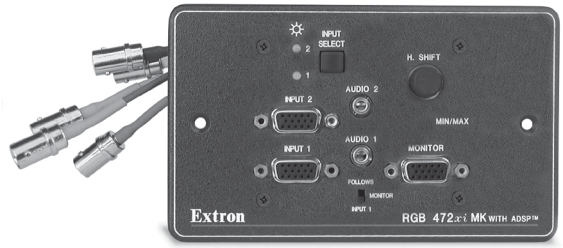
Extron® Electronics
INTERFACING, SWITCHING AND DISTRIBUTION

Installation Guide



RGB 400xi Series Installation Guide

MK Box-Mounted Interface

68-636-02 **Rev. B**
Printed in the USA
09 02

Precautions

Safety Instructions • English

This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français

Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).

Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch

Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español

Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.

Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

Alimentations• Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalientamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterias usadas siguiendo las instrucciones del fabricante.

Table of Contents

About this Guide 1

Installation Overview 1

Installation Instructions 2

- Preparing the site and installing the MK box 2
- Mounting the interface MK to the knockout box 3

Specifications 4

Included Parts 5

Accessories 6

- Audio connector 6
- Accessories 6

Cables 6

- Male-to-male VGA cables 6
- Male-to-male 90° VGA cables 6
- Laptop breakout cables 6
- High resolution cables 7

RGB 400*xi* Series MK Dimensions 8

MK Interface Cut-out Template 10

All trademarks mentioned in this manual are the properties of their respective owners.

68-636-02 **Rev. B**
Printed in the USA
09 02

About this Guide

This guide contains instructions for mounting the Extron RGB 460*xi* and 472*xi* MK interfaces in a standard, 2-gang MK-style or KO-style knockout switch box that is used in Singapore, the United Kingdom, and Australia. **The box used must have a depth of 47 mm at a minimum.** This interface is a standard RGB 460*xi* or RGB 472*xi* interface, mounted to a faceplate, tailored to fit in the MK box.

In this guide, the terms "RGB 400*xi* Series MK interface" and "interface" are used interchangeably.

For information about operating and wiring the interface, refer to the *RGB 460xi Series User Manual*, Part #68-542-01, and the *RGB 470xi Series User Manual*, Part #68-661-01.

Installation Overview

CAUTION *Installation and service must be performed by authorized personnel only. This product must be used with the correct MK electrical box.*

Install the interface as follows:

1. Turn all of the equipment off. Make sure that the computer, the interface, and the output devices (projector/monitor, speakers) are all turned off and disconnected from the power source.
2. Select the installation location and install the electrical wall box. See *Preparing the site and installing the MK box* in this guide.
3. Set the gain and DIP switches. Refer to the specific user's manual for your interface.
4. Connect the video, audio, and power cables. Refer to the specific user's manual for your interface.
5. Connect power cords and turn on the projector or monitor and audio device, the interface, and the computer.
6. The picture should now appear, and sound should be audible. If not, ensure that all devices are plugged in and receiving power. Check the cabling and switch settings, and make adjustments as needed.
7. Disconnect power from all the devices.
8. Mount the interface into the electrical box. See *Mounting the interface MK to the knockout box* in this chapter.
9. Restore power to the devices.

Installation Instructions

NOTE *The MK box is not included with the interface; the installer is responsible for obtaining and installing the box.*

NOTE *The MK box must have a minimum depth of 47 mm.*

Preparing the site and installing the MK box

Choose a location that allows cable runs without interference. Allow enough depth for both the MK box and the cables. You may need to install the cables into the wall, furniture, or conduits before installing the interface.

The installation must conform to national and local electrical codes and to the interface's size requirements. Dimensional drawings and actual-size cut-out templates are provided at the end of this guide.

1. Cut out the center portion of the cut-out template.
2. Place the template (or the MK box) against the installation surface, and mark the guidelines for the opening on the wall or furniture.
3. Cut out the material from the marked area.
4. Check the opening size by inserting the MK box. The box and interface should fit easily into the opening. Enlarge or smooth the edges of the opening if needed.
5. Feed cables through the wall box punch-out holes, and secure them with cable clamps to provide strain relief.
6. Exposed cable shields (braids or foil) are potential sources of short circuits. Trim back and/or insulate shields with heat shrink (figure 1).

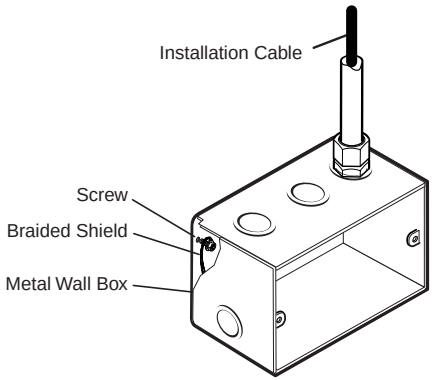


Figure 1 — Grounding outer braided and foil shields

WARNING *To prevent short circuits, the outer foil shield can be cut back to the point where the cable exits the cable clamp. Both braided and foil shields should be connected to an equipment ground at the other end of the cable.*

7. Insert the MK box into the opening, and secure it to the wall stud or furniture with nails or screws, leaving the front edge flush with the outer wall or furniture surface (figure 2).

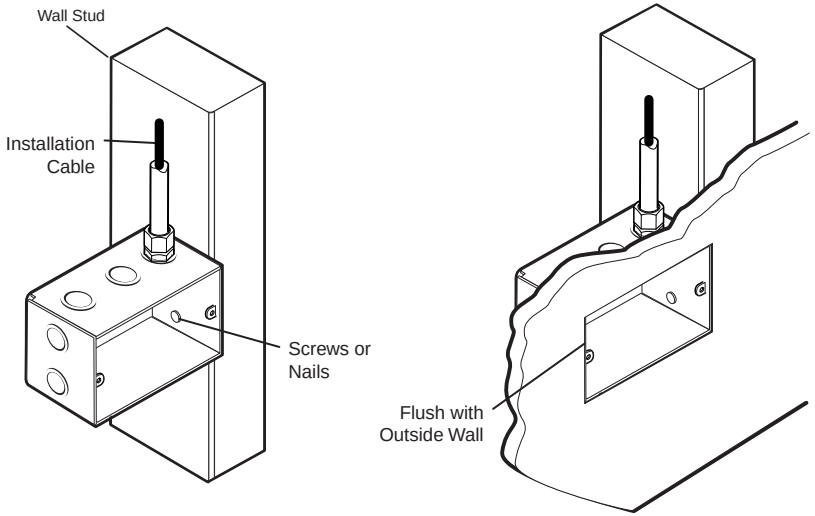


Figure 2 — Securing the MK knockout box to a wall or furniture

8. Set the gain and DIP switches and cable and test the interface before securing the interface into the wall box. ***The switches and cables will be inaccessible after installation***. Refer to the specific user's manual for your interface.

Mounting the interface MK to the knockout box

1. Disconnect the power supply to remove power from the interface.
2. Place the interface through the opening in the wall or furniture and into the knockout box. Take care not to damage the cables, which will lay next to the interface at the side of the box.

3. Mount the interface's faceplate to the knockout box with M3, 30 mm machine screws (figure 3).

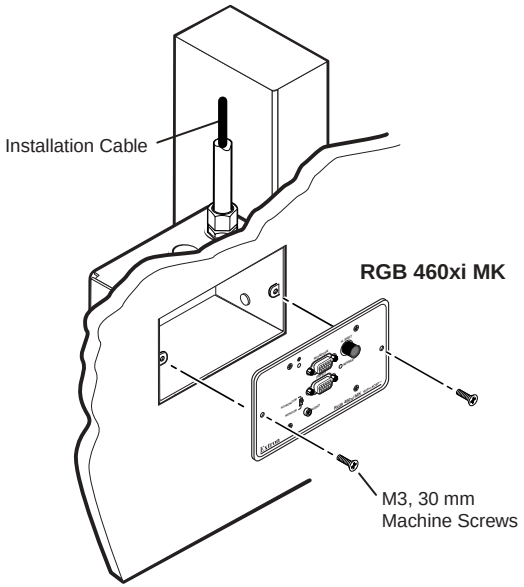


Figure 3 — Mounting the interface to the MK box

4. Reconnect the power supply.

Specifications

This guide shows power requirements and physical specifications only. For electrical and functional specifications, refer to the specific user's manual for your interface.

General

Power	9 to 24VDC, 0.25 A, 5 watts, external (The power supply is included.)
Temperature/humidity	Storage -40° to +158°F (-40° to +70°C) / 10% to 90%, non condensing Operating +32° to +122°F (0° to +50°C) / 10% to 90%, non condensing
Rack mount	No, but MK box mountable
Enclosure type	Metal
Enclosure dimensions	
460xi MK Plate	3.4" H x 5.7" W (8.6 cm H x 14.5 cm W)
472xi MK Plate	3.5" H x 5.83" W (8.9 cm H x 14.8 cm W)
Interface back enclosure	2.7" H x 3.3" W x 1.1" D (6.9 cm H x 8.4 cm W x 2.8 cm D) (Depth excludes front panel connectors and controls.)
Product weight	0.5 lbs (0.2 kg)
Shipping weight	3 lbs (1.4 kg)
Vibration	ISTA/NSTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Approvals	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE *Specifications are subject to change without notice.*

Included Parts

These items are included in each order for an RGB 460*xi* or RGB 472*xi* MK interface:

	Included parts	Part number
	RGB 460*xi* MK (black/white, unfinished)	60-467-01, -51
or	RGB 472*xi* MK (black/white, unfinished)	60-518-01, 51
&	12VDC, 1.0A external power supply kit	70-055-01
&	RGB 460xi Series User's Manual	68-542-01
or	RGB 470xi Series User's Manual	68-661-01
&	RGB 400xi Series MK Installation Guide	68-636-02
&	M3, 30 mm machine screws	40-344-01

Accessories

Audio connector	Part number
3.5 mm stereo plug	10-306-01
MK mounting bracket (black, white, unfinished)	70-086-16, -26, -56

Accessories	Part number
Mac/VGA adapter (VGA male, Mac female, Mac RGBS, 1')	26-340-01
Mac HV/VGA adapter (VGA male, Mac female, Mac RGBHV, 1')	26-340-02
Mac 35/VGA 6' adapter (15-pin male Mac II, 15-pin HD male VGA)	26-287-01
SY VGA/XGA adapter (15-pin male to 5 BNC male, 6')	26-173-01
SY 15 HDM RGBHVF (15-pin male VGA to 5 BNC female, 2')	26-397-01

Cables

Male-to-male VGA cables	Part number
VGA M6' MHR	26-238-01
VGA M3' MHRA (with audio)	26-490-01
VGA M6' MHRA (with audio)	26-490-02
VGA M12' MHRA (with audio)	26-490-03

Male-to-male 90° VGA cables	Part number
VGAM 90 MHRA 6' (with audio)	26-510-02

Laptop breakout cables	Part number
Mac 15-pin HD F adapter cable kit w/audio	70-156-01
13W3 15-pin HD F adapter cable kit w/audio	70-157-01

High-resolution cables	Part number
BNC-5-3'HR	26-260-15
BNC-5-6'HR	26-260-01
BNC-5-12'HR	26-260-02
BNC-5-25'HR	26-260-03
BNC-5-50'HR	26-260-04
BNC-5-75'HR	26-260-16
BNC-5-100'HR	26-260-05
BNC-5-3'HRP (plenum)	26-378-01
BNC-5-6'HRP (plenum)	26-378-02
BNC-5-12'HRP (plenum)	26-378-03
BNC-5-25'HRP (plenum)	26-378-04
BNC-5-50'HRP (plenum)	26-378-05
BNC-5-75'HRP (plenum)	26-378-06
BNC-5-100'HRP (plenum)	26-378-07
Bulk installation cable (14-conductor, non-plenum), 500' HR	22-120-02
Bulk installation cable (17-conductor, plenum), 500' HR	22-111-03

RGB 400*xi* Series MK Dimensions

NOTE *The dimension drawings (figures 4 and 5) are not 100% size.*

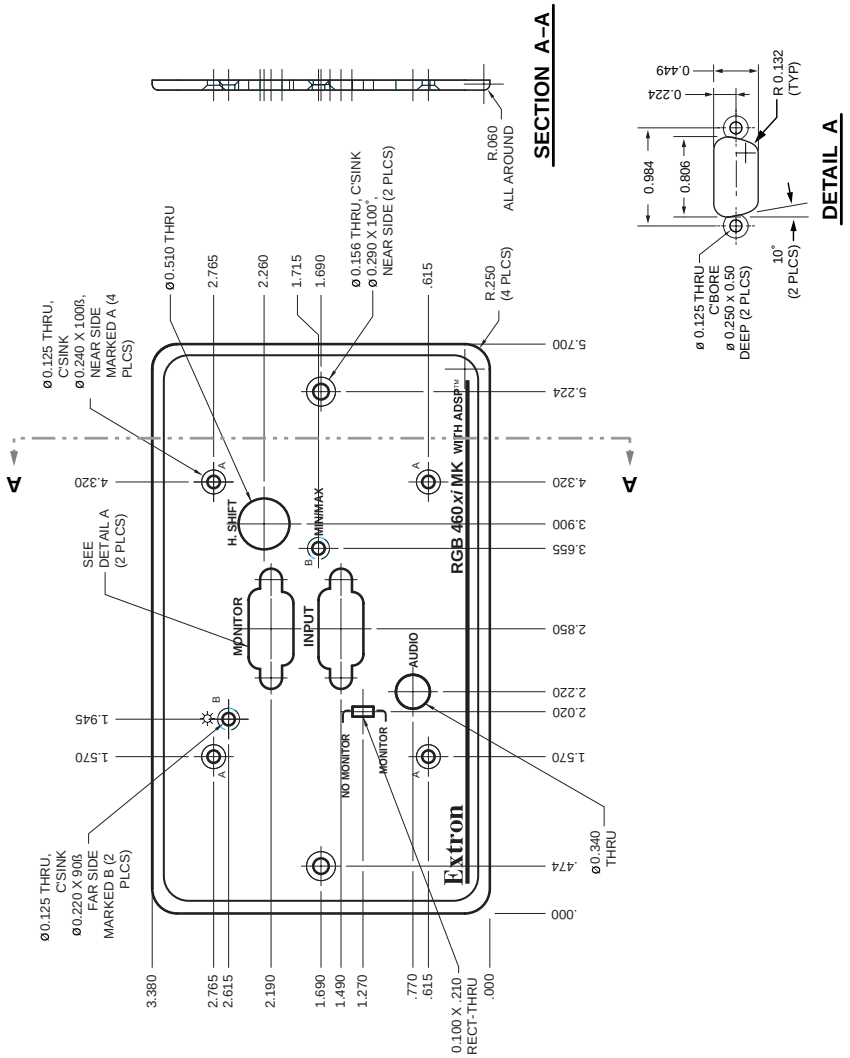


Figure 4 — RGB 460*xi* MK Dimensions

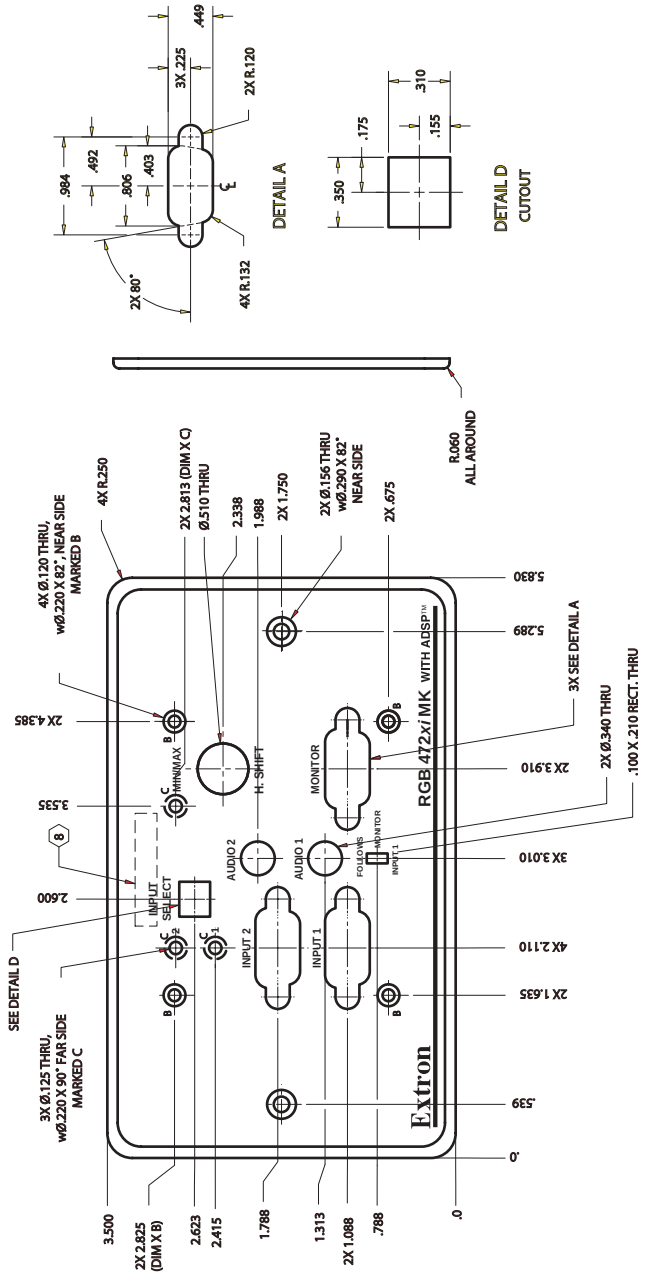


Figure 5 — RGB 472*xi* MK Dimensions

MK Interface cut-out template

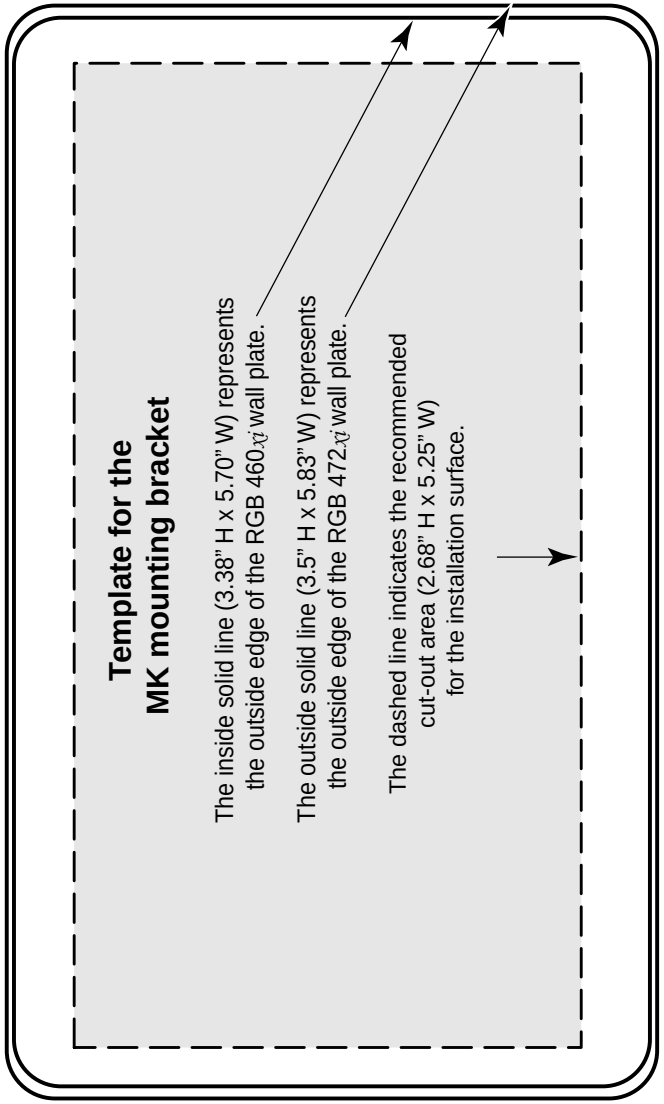

Template for the
MK mounting bracket
The inside solid line (3.38" H x 5.70" W) represents the outside edge of the RGB 460xi wall plate.
The outside solid line (3.5" H x 5.83" W) represents the outside edge of the RGB 472xi wall plate.
The dashed line indicates the recommended cut-out area (2.68" H x 5.25" W) for the installation surface.

Figure 6 — Cut-out template

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:

Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805, USA

Europe, Africa, and the Middle East:

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands

Asia:

Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363

Japan:

Extron Electronics, Japan
Daisan DMJ Bldg. 6F,
3-9-1 Kudan Minami
Chiyoda-ku, Tokyo 102-0074
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

www.extron.com

Extron Electronics, USA
1230 South Lewis Street
Anaheim, CA 92805
USA
714.491.1500
Fax 714.491.1517

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands
+31.33.453.4040
Fax +31.33.453.4050

Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Building
Singapore 368363
+65.6383.4400
Fax +65.6383.4664

Extron Electronics, Japan
Daisan DMJ Building 6F
3-9-1 Kudan Minami
Chiyoda-ku, Tokyo 102-0074 Japan
+81.3.3511.7655
Fax +81.3.3511.7656

© 2002 Extron Electronics. All rights reserved.